

Serial No. 09/967,218

Docket No.: KCC-15,529

REMARKS

Applicants' undersigned attorney thanks the Examiner for the Examiner's comments. Applicants respectfully request reconsideration of this patent application, particularly in view of the above Amendment and the following remarks. Currently, Claims 1-23 are pending.

Amendment to the Claims

Claims 1-23 have been examined, with no claims being allowed. Claims 1-4, 12, and 20 have been amended. No new matter has been added by this amendment.

Applicants have amended Claim 1 to include the limitation of about 0.59-4% by weight impact modifier. Support for this amendment is provided in the Examples on pages 13-26 of the specification, particularly in Tables 5-17.

Applicants have amended Claims 2, 3, 4, 12, and 20 to include the limitation of the impact modifier, or more particularly EPDM, ethylene-propylene monomer, and/or ethylene-propylene rubber, having an ethylene content between about 48% and about 72%. Support for this amendment is provided in the attached product information sheet from Bayer, which indicates that a typical range of ethylene content in EPDM is between about 48% and about 72%. Furthermore, as indicated in the attached product information sheet from Bayer, the terms "ethylene-propylene-diene monomer," "ethylene-propylene monomer," and "ethylene-propylene rubber" are used interchangeably to describe the same class of materials. Thus, Applicants have added ethylene-propylene monomer (EPM) and ethylene-propylene rubber (EPR) to Claims 3, 4, 12, and 20 to fully recite the intended materials. Bayer EPDM/EPM/EPR was used in the Examples on pages 13-26 of the specification, as indicated on page 13, line 10. Although the Bayer product information sheet does not have a date on it, Applicants have been working with EPDM materials for a number of years and can attest to the consistency in the ethylene content of these materials throughout the years.

Serial No. 09/967,218

Docket No.: KCC-15,529

No additional fee is due for this Amendment because the number of independent claims remains unchanged and the total number of claims also remains unchanged.

Claim Rejections - 35 U.S.C. §102

The rejection of Claims 1-5, 7, 9-10, 12-13, 15, 17-18, and 20-22 under 35 U.S.C. §102(b) as being anticipated by Ogale et al. (U.S. Patent 5,346,756) is respectfully traversed, particularly in view of the above Amendment and the following remarks.

Ogale et al. disclose a nonwoven textile material made up of fibers including a blend of a propylene polymer material (A) and an olefin polymer material (B). The olefin polymer material (B) may be a propylene polymer composition consisting essentially of: (a) from 10 to 50% of a propylene polymer having an isotactic index of greater than 80, or a copolymer of propylene with ethylene or a C₄-C₈ alpha-olefin or combinations thereof, containing over 80% propylene and having an isotactic index greater than 80, (b) from 5 to 20% of a semi-crystalline copolymer fraction, which copolymer is insoluble in xylene at room or ambient temperature, and (c) from 40 to 80% of a copolymer fraction of ethylene with propylene or a C₄-C₈ alpha-olefin or combinations thereof, and optionally with minor amounts of a diene, said copolymer fraction containing less than 40% ethylene or a C₄-C₈ alpha-olefin or combinations thereof, being soluble in xylene at room temperature and having an intrinsic viscosity from 1.5 to 4 dl/g, wherein the total of the (b) and (c) fractions, based on the total olefin polymer composition, being from about 50% to 90%, and the weight ratio of (b)/(c) being less than 0.4.

For a reference to anticipate a claim, the reference must disclose each and every element or limitation of the claim. Ogale et al. do not disclose each and every element or limitation of independent Claims 1, 12, and/or 20.

Applicants' invention as recited in independent Claim 1 requires that the impact modifier is limited to about 0.59% to about 4% by weight of the textile fiber. The Examiner points out that Ogale et al. disclose fibers comprising 90-70% weight of propylene and 10-30% weight of ethylene-propylene copolymer. Ogale et

Serial No. 09/967,218

Docket No.: KCC-15,529

al. also disclose fibers made up of 5 to about 95% component (A), which means that component (B) must account for *at least 5%* of the fiber. The Examiner suggests that component (B) is the equivalent of an impact modifier. Even assuming that to be the case, the amount of impact modifier recited in Applicants' Claim 1 (0.59-4%) is far less than the amount of any impact modifier component disclosed by Ogale et al.

In Ogale et al., the propylene polymer material and the olefin polymer material are prepared by polymerization, generally by sequential polymerization in the case of the olefin polymer material, of the relevant monomers in the presence of a stereospecific Ziegler-Natta catalyst system having a solid catalyst component supported on a magnesium dihalide in active form. As evidenced by Schmidt et al. (U.S. Patent No. 5,804,658), polymerization of a mixture of ethylene, propylene, and a diene in the presence of a Ziegler-Natta catalyst system would result in an EPDM rubber. However, Ogale et al. disclose sequential polymerization of more than just ethylene, propylene, and a diene. More particularly, Ogale et al. disclose polymerization of a propylene polymer having an isotactic index of greater than 80, or a copolymer of propylene with ethylene or a C₄-C₈ alpha-olefin or combinations thereof, containing over 80% propylene and having an isotactic index greater than 80, a semi-crystalline copolymer fraction, which copolymer is insoluble in xylene at room or ambient temperature, and a copolymer fraction of ethylene with propylene or a C₄-C₈ alpha-olefin or combinations thereof, and optionally with minor amounts of a diene, said copolymer fraction containing less than 40% ethylene or a C₄-C₈ alpha-olefin or combinations thereof. Thus, Ogale et al. fail to disclose EPDM per se.

Applicants' invention as recited in independent Claims 12 and 20, as well as in dependent Claims 2-4, requires an impact modifier, or at least EPDM, EPM, or EPR, having an ethylene content between about 48% and about 72%.

Ogale et al. fail to disclose any styrenic block copolymers, or other elastomeric block copolymers, or any other polymers having an ethylene content between about 48% and about 72%, as suitable olefin polymers. The molecular structure of such block copolymers as SEBS and SEPSEP, for example, includes block segments of styrene monomer units and rubber monomer units. Prior to processing, polystyrene end-blocks are associated in rigid domains. "Physical

Serial No. 09/967,218

Docket No.: KCC-15,529

crosslinking" via these domains yields a continuous three-dimensional network. During processing, in the presence of heat and shear or solvent, the polystyrene domains soften and permit flow. After cooling or solvent evaporation, the polystyrene domains reform and harden, locking the rubber network in place. This "physical crosslinking" and the reinforcing effect of the styrene domains give these polymers their high tensile strength. The rubber mid-block gives them their elasticity. Ogale et al. fail to disclose any olefin polymers having the elastomeric properties of EPDM, EPM, EPR, SEBS, and/or SEPSEP.

Furthermore, Ogale et al. disclose lower ethylene content random copolymers, whereas the present invention includes high ethylene content copolymers. More particularly, EPDM/EPM/EPR and the rubber monomer units of the elastomeric block copolymers typically include at least 40% ethylene, or more particularly between about 48% and about 72% ethylene for EPDM/EPM/EPR. In contrast, Ogale et al. disclose a random propylene terpolymer including from 1.5 to 5% ethylene (Col. 1, lines 43-46), or a propylene polymer composition including from 40 to 80% of a copolymer fraction that contains less than 40% ethylene (Col. 1, line 64 - Col. 2, line 12), such that the propylene polymer composition includes less than 16 to 32% ethylene. Consequently, the resulting material in Ogale et al. is quite different from the fibers of the present invention.

For at least the reasons presented above, Applicants respectfully submit that Claims 1, 12, and 20 are not anticipated by Ogale et al. Because Claims 2-5, 7, 9-10, 13, 15, 17-18, and 21-22 depend from Claims 1, 12, and 20, respectively, these claims are also not anticipated by Ogale et al. Thus, Applicants respectfully request withdrawal of this rejection.

Claim Rejections - 35 U.S.C. §103

The rejection of Claims 6, 8, 11, 14, 16, 19, and 23 under 35 U.S.C. §103(a) as being unpatentable over Ogale et al., as applied to Claims 1, 12, 20, and 22 above, is respectfully traversed.

As mentioned above, Ogale et al. disclose a nonwoven textile material made up of fibers including a blend of a propylene polymer material and an olefin

Serial No. 09/967,218

Docket No.: KCC-15,529

polymer material polymerized in the presence of a particular catalyst system, but fail to disclose the combination of polypropylene blended with the type or amount of impact modifier claimed in the present invention.

The Examiner suggests that it would have been obvious to one of ordinary skill in the art to have employed Ogale et al.'s textile fibers to form staple fibers, knit fabrics, or absorbent articles. However, since Ogale et al. fail to disclose or suggest any fibers including the combination of polypropylene blended with the type or amount of impact modifier recited in Claims 1, 12, and 20, it would, therefore, not be obvious to a person of ordinary skill in the art to form staple fibers, knit fabrics, absorbent articles, or any other applications, using a combination of polypropylene blended with 0.59-4% of an impact modifier, or with an impact modifier having an ethylene content between about 48% and about 72%, based on the teachings of Ogale et al.

For at least the reasons given above, Applicants respectfully submit that the teachings of Ogale et al. fail to disclose or suggest Applicants' claimed invention. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Conclusion

Applicants believe that this case is now in condition for allowance. If the Examiner feels that any issues remain, then Applicants' undersigned attorney would like to discuss the case with the Examiner. The undersigned can be reached at (847) 490-1400.

Respectfully submitted,


Melanie I. Rauch
Registration No. 40,924

Pauley Petersen & Erickson
2800 West Higgins Road, Suite 365
Hoffman Estates, Illinois 60195
(847) 490-1400
FAX (847) 490-1403

RECEIVED
CENTRAL FAX CENTER

SEP 15 2003

OFFICIAL

KCC-1125

9

MR/S

Bayer

Buna EP**Ethylene-propylene rubber
(EPM/EPDM)****Properties**

Provided that the compounds are formulated and processed correctly, the vulcanizates have excellent resistance to weathering and ozone, good to very good aging resistance and low temperature flexibility, low electrical conductivity and satisfactory resistance to polar chemicals.

Applications

Technical moldings of all kinds; extrusions, e.g. profiles used in the construction and automotive industries; hose, sheet, open and closed cell sponge rubber; roll covers; low voltage cable insulation.

Product range and typical properties

Product	Mooney viscosity ⁽¹⁾ ML (1+4) 125°C	Mooney viscosity ⁽¹⁾ ML (1+8)	ENB content ⁽²⁾ (%)	Ethylene content (%) corr. ⁽³⁾	Physical form	Standard packaging
Copolymers						
Buna® EP T 2070	22	35 (100°C)	0	68	bales and pellets	34 kg bales, 24 bales per pallet
Terpolymers - low unsaturation						
Buna® EP T 6250	55	-	2	60	bales	34 kg bales, 24 bales per pallet
Buna® EP T 2370	16	25 (100°C)	3	72	bales	25 kg bales, 30 bales per pallet (pellets on request)
Terpolymers - medium unsaturation						
Buna® EP T 2460	21	33 (100°C)	4	62	bales	34 kg bales, 24 bales per pallet
Buna® EP T 2450	22	35 (100°C)	4	59		
Buna® EP G 2470	24	-	4	69		
Buna® EP G 3440	28	-	4	48		
Buna® EP G 5450	46	-	4.5	52		25 kg bales, 35 bales per pallet
Buna® EP G 5455 (50 phr paraffinic oil)	46	-	4.5	55	bales	
Buna® EP T 6465 (50 phr paraffinic oil)	53	37 (150°C)	4	64		34 kg bales, 24 bales per pallet
Buna® EP T 5459 (100 phr paraffinic oil)	54	38 (150°C)	4	59		25 kg bales, 30 bales per pallet
Buna® EP T 6470	57	55 (125°C)	4.5	68	bales and pellets	34 kg bales, 24 bales per pallet
Buna® EP G 8450	76	-	4.5	53	bales	
Buna® EP G 3473 (30 phr paraffinic oil)	34	-	4.5	69		25 kg bales, 35 bales per pallet
Buna® EP G 6470	59	-	4.5	71		20 kg bales, 30 bales per pallet
Buna® EP G 8460	81	-	4.5	66		20 kg bales, 30 bales per pallet
Buna® EP G 5567 (75 phr paraffinic oil)	46	-	5	66		25 kg bales, 35 bales per pallet

⁽¹⁾ unmassed (DIN 53523; ASTM D 1646)Density 0.86 g/cm³; for oil-extended grades 0.87 g/cm³⁽²⁾ guide values⁽³⁾ correction formula: $C_2 \text{ corr.} = C_2 \text{ uncorr.} \times \frac{(100 - \text{ENB}\%)}{100}$